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TRANSCRIPT OF:

FEBRUARY 14, 1989
MoDNR NPDES HEARING ON
PROPOSED DOE DISCHARGE PERMIT

For The :
Weldon Spring Site Remedial Action Project
Weldon Spring, Missouri

Prepared By MK-Ferguson Company

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U.S. Department Of Energy
Oak Ridge Operations Office
Weldon Spring Site Remedial Action Project

Transcript of
Missouri Department of Natural Resources
February 14, 1989 Public Meeting in St. Charles County
Ramada Inn, Wentzville, Missouri

Public Comment on
U.S. DOE's Proposed NPDES Permit
to Treat Water from the Weldon Spring Quarry
and Discharge Treated Water into the Missouri River

Transcript Prepared By:

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Moderator: Celeste Kuhn
Good evening, ladies and gentlemen. Good evening, everyone. My name is Celeste Kuhn, and I will be serving as the moderator for this meeting on the proposed Weldon Spring quarry wastewater discharge permit. Can everyone hear? This meeting is being held to provide you with an opportunity to ask questions about the proposed permit and to allow the Department of Natural Resources to receive your comments on it. We will be proceeding as following this evening.

First there will be a brief presentation by the Department of Natural Resources and then there will be a short presentation by the Department of Energy. Together this should take probably 15 or 20 minutes. After that I will be calling on any elected officials who wish to speak and next I will call on people who have filled out cards. Finally, I will be calling on anyone else who wants to speak. I need to call to your attention that this meeting is on the quarry draining proposal only. We will only be accepting comments on that. We will not be accepting comments on the overall cleanup or raffinate pits or asbestos or anything like that at this time. I know that some of you are concerned about that and if you would like to talk to the Department of Energy officials after the meeting you can or there will be future public meetings on those topics. But tonight we really need your comments on this particular proposal and permit for draining the quarries so that's what the meeting is about.

If you do not wish to speak tonight but you have comments later you can send them to the Missouri Department of Natural Resources, Water Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102. That address is in the ivory colored fact sheet that you may have picked up out at the table and the deadline for written comments is March 6th. If you have not signed in, please do so. We will be mailing out a summary of this meeting, and if you need any extra cards we will be passing those out during the meeting or they're on the table outside.

I would now like to introduce staff members from the Department of Natural Resources who are here tonight. To my left is Bob Hentges, chief of permits with the water pollution control program. Next to him is Ron Burgess, an environmental engineer with the department's public drinking water program. We also have Mr. Dave Bedan who's a radiological waste coordinator and Mr. Richard Lockes, also with the water pollution control program; and Don Maddox with the department's St. Louis regional office, in the back. We do have representatives from the U.S. Department of Energy, and on my right is Steve McCracken, who's the deputy project manager for Weldon Springs. Mr. McCracken, would you like

to introduce the other people that you have with you?

Steve McCracken
Thank you. On my right, on the far right is Roger Nelson. He is the manager of the environmental safety and health program at the site. On my left is Ivan Joya. He is the process engineer that was in charge of the conceptual design that we are proposing this evening for water treatment. And again on my right is Dr. Margaret MacDonell. She is with Argonne National Laboratory, and she was the primary author on the water treatment plan that we are presenting tonight.

Celeste Kuhn
Thank you. Mr. Bob Hentges will now give an overview of the department's role regarding the wastewater discharge permit application.

Bob Hentges
Thank you, Celeste. I hope my voice holds out tonight. When you checked in we had on the tables this legal sized document. And I am going to use that to basically explain how we are going through the permitting process. The Department of Energy has applied for an operating permit or an NPDES permit to discharge treated water from the quarry into the Missouri River. We have completed steps one, two and three on this form. We received the application. Of course, we have been working with the Department of Energy for several years on the application. We've made a preliminary decision and on February 3, we issued a public notice and in that public notice we had effluent limitations and monitoring requirements that we would impose upon the Department of Energy to discharge from this facility. We are now in the 30-day public notice period. We do not normally hold informational meetings like this during the public notice, but because we knew that there was a lot of public interest, we held a meeting last night in St. Louis and are holding this meeting here tonight in Wentzville to directly gain input from the public as to what they think any terms or conditions of the permit should be. We are making an official record tonight and we will use this record as part of the overall record and we will consider all the comments before we make a final determination on this NPDES permit. Where we go from here is, at the completion of the 30-day notice period, a staff decision will have to be made as to either hold a formal hearing or to issue the permit or to deny the permit. And it is after that decision is made that if we decide to issue the permit that the people, or the citizens of the state of Missouri would then have an opportunity to appeal that permit to the Missouri Clean Water Commission. It is that appeal process that allows the citizens a legal standing in the permit process. So if you are dissatisfied with what happens in this process, that's the point in time between step five

and step six which you can then gain legal standing to proceed with an appeal of this NPDES permit. And as I said, we are now in step four and we are here today to listen to your comments to make an official record, and we will be considering anything you have to say here tonight in our final determination regarding this permit. Thank you.

Celeste Kuhn
Thank you. We will now provide the Department of Energy with an opportunity to make a brief presentation.

Steve McCracken
Thank you, Celeste. Ladies and gentlemen. On behalf of the Department of Energy, we are pleased to be here this evening. Certainly a very important part of the work and the planning that we do involves meetings such as this one that allow us to discuss with you the work that we plan to do and receive comments from you to consider in our planning. I'm sure that most of you are familiar with the Weldon Springs site, but for those that are not, it is a remedial action project. The DOE and our contractors - certainly in cooperation with the Environmental Protection Agency and the state of Missouri - are working to clean up an old uranium feed materials production plant that is in St. Charles County and was shut down in the late 1960s. Our task at Weldon Springs is certainly very complex. It requires very careful and time-consuming planning in order to make the decisions that are necessary for final cleanup. The DOE and the EPA and the state fortunately believe that we should not delay doing those things that can significantly reduce offsite release of contaminants and thus improve public health and safety. At our site we have already done a number of things. We have removed the PCB oils at the site that pose a hazard. We are now carrying out asbestos removal operations. We are also doing chemical cleanup activities and we have a number of other activities under way and planned. The quarry at our site - for those of you who are not familiar with our site we have a chemical plant and then down the road we have a quarry. The quarry is another of those areas that poses a potentially significant threat to the public. There is a large amount of contaminated debris that's in that quarry. In that quarry, there is also contaminated water and that water is leaking to the ground water. For that reason we have concentrated our studies on that water in order to remove the water that will then allow us to remove the contaminated debris from the quarry and thus remove the source that is contaminating the ground water. We have prepared a very comprehensive plan and we believe that plan will allow us to remove that water as a threat to the public and in a very safe way. Our purpose here tonight is to discuss with you any questions or comments that you might have about that plan. Before we get started, Ivan Joya is going to give you just a few comments

about the plant to show you what the conceptual design of the water treatment plant is that we propose.

Ivan Joya
One of the first steps in planning this treatment plant was to test the water for contaminants. We start with a very long list and a very comprehensive list of contaminants. We tested the water and we found, in the pond water, four contaminants of concern listed here. The reason these contaminants are of concern is because they exceed certain state or federal standards. For example, the arsenic and manganese exceeds the drinking water quality standards of .05 milligrams per liter. 2,4-Dinitrotoluene exceeds the ambient water quality standards of .11 micrograms per liter. The uranium exceeds the DOE's radiation protection discharge standards of 550 picocuries per liter. So, the plant that we are designing will remove these contaminants to meet the standards applied.

This schematic shows our operation schemes. There are three major components here: an equalization basin, the treatment plant itself, and the effluent ponds. We would be pumping water from the quarry pond into the equalization basin and combining with some other flows from the operations. The reason why these flows are selected is to provide a constant feed to the treatment plant to improve its operations. The treatment plant itself will be a conventional chemical treatment -- it's a combination of chemical/physical processes which are standard in the industry. We have chemical addition for precipitation, neutralization, filtration, adsorption on activated alumina, ion exchange, and adsorption on activiated carbon. The treated water is then discharged into an effluent pond.. One of the things we've got in this plant is we've added an ion exchange step. And this allows us to remove uranium to levels below the applicable standards. In fact, we are designing to remove uranium down to an average of 30 picocuries per liter, not to exceed 100. Any waste remaining within the plant, such as sludges or spent resins, will be retained in the plant and stored, until further disposal, within the Weldon Spring site. So, we will discharge effluent...the way we will operate the plant is we will store the treated water in one effluent pond and, when the pond's filled, we'll stop the treatment process, we will sample the water, test it for compliance with the limitations in the permit and only then will the discharge move by pipeline into the Missouri River.

This is the layout of the facility we're designing. The quarry itself is in this area here and the ponds are about 400 feet from the fence line. The equalization basin is approximately two million gallons and it will be lined with a synthetic membrane. The treatment plant is about 2,000 square feet. The effluent ponds are each one million gallons. They also will be lined with a

synthetic membrane. So, we will pump the water through a pipeline in this direction about one, one and one-half miles to the outfall of the river and we will pump it only if the water complies with the limitations in our discharge permit.

Celeste Kuhn
Do you have anything further, Mr. McCracken?

Mr. McCracken
No, thank you.

Celeste Kuhn
We have now reached the point in the meeting for comments and questions from the audience and I would ask each of you to come forward and speak into the microphone so that everyone present can hear you and so that we can have a clear audio recording of the meeting. Please spell out your last name and give us the name of an organization if you're representing one. And first we will call on elected officials. Is there any representative of U.S. congressional delegate? Are there any state senators or representatives who would like to speak? Yes, ma'am. Please come up.

Judith Kato Gittemeier
For the record, my name is Judith Kato Gittemeier, last name, G-I-T-T-E-M-E-I-E-R. I am here representing State Representative Craig Kilby of the 21st District. Mr. Kilby's in Jefferson City tonight and is unable to attend tonight's meeting and I came to read a short statement. "The potential threat to the St. Charles County well field posed by the contaminated water at the Weldon Spring quarry has long been a major concern to the citizens of St. Charles County. I would simply like to state that I am both pleased and supportive of the proposed cleanup action at the quarry. The plans presented to me appears well-planned, safe and reasonable. I am particularly glad that the split samples of the treated water will be allowed to anyone before releasing it into the Missouri River. While some technical details remain to be examined, those I have spoken with on all sides of this issue appear to be supportive of this long overdue cleanup action. The proposal has my endorsement." Craig Kilby.

Celeste Kuhn
Thank you.

Are there any county officials who would like to ask a question or make a comment? Are there any city officials here? Yes sir.

Stan Remington
My name is Stan Remington and I'm the hydrology consultant for St.

Charles County for the Weldon Springs. I wanted to ask, I was thinking about one question - from what I understand there are about three million gallons of water that are presently in the quarry and this is the water that will be treated and then later pumped out to the Missouri River. Now, when this is gone, I assume that the water that's in there now comes from two sources - one from surface water, rain water that is, and the other from ground water. Will this not keep filling up once you have drained the quarry? Will it not keep filling up from renewed sources until the contaminants are removed completely and the problem is relieved?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
Yes, it will continue to fill up and it is our intent that once we begin the treatment operations, we will continue operations until the entire quarry is finally cleaned up and there is not longer any reason to treat water.

Stan Remington
Do you have any time table on this from the time that you empty the quarry until the contaminants are removed?

Mr. McCracken
Our current estimate would be about six to seven years.

Stan Remington
So then it's kind of a continuous process for that period of time?

Steve McCracken
Yes, sir, it is.

Stan Remington
Okay, thank you.

Celeste Kuhn
Thank you.

Stan Remington
Incidentally, I want to congratulate you on that report. I think that was well done.

Steve McCracken
Thank you

Celeste Kuhn
Are there any officials representing cities who wish to speak? Okay, I will now call on people who have filled out cards in the

order in which they were handed to me. Gene Rue.

Gene Rue
Well, ladies and gentlemen, can you hear me? I always talk loud enough that I don't hardly need a microphone. But my name is Gene Rue and I represent the Coalition for Life and Environment of about three counties here and I would like to ask a few questions of the people here that are going to do so good a job on this cleanup deal and I'd like to ask the Department of Natural Resources - have we got any representatives here that represent us in Jefferson City in this audience?

Celeste Kuhn
I'm sorry, sir. Can you go ahead and ask the questions?

Gene Rue
I just wanted to find out if we had any because I had a few questions for them, if it wouldn't be out of order. But I would like to find out one thing from the Department of Natural Resources and the Department of Energy and do we have any representatives from the EPA? I would like to find out a few questions about - when we decide - not we, but when you people decide to turn this water loose down the Missouri River and I'd like to find out the average person that lives along any river anybody that's got a point well is drinking the water right out of the river. That's a known fact because I owned wells there and drove 'em and so forth. Now the thing that I would like to know is this - who's going to check these people's water to find out what toxic material is going to be in the water? Now, for all of your information at the present time, we in the state of Missouri, we don't have a complete setup to check this water for the average citizen and there's one thing you should all know. The governor at the present time is working on two bills that's sittin' there that I've been working on for years to get the people's water checked for these chemicals and there was a nice editorial in the Post-Dispatch about ten days ago.

Celeste Kuhn
Mr. Rue, can you ask your question, please?

Gene Rue
...Where the governor's sitting on this bills right now but he's not exactly sitting on them, he's working on them to try to get somebody and, when I say somebody, it could be the Department of Health or the Department of Natural Resources to take and start checking the water that we're all drinking. Now that might sound kind of ridiculous to some of you but I will say this. There's no place - and I have this all researched - there's no place that the average citizen can take water and have it checked for these

chemicals unless the Department of Natural Resources or the EPA think it might be contaminated. Well the average citizen, I think he's got a right to think and want to know what he's drinking. Now I might be a little out of order on this thing but we're all talking about water. And that's what we live on is water, the water we drink. And you people, I admit one thing, you've got a heck of a job because you're gonna try to release this water down the Missouri River and you know I don't know how you're going to really decontaminate it. Now I'm not that smart, but I don't know who else is smart enough to get all that stuff out of the water before it goes down the Missouri River and goes down into our drinking water. But I'm just asking these questions and letting the people know what I think is really going on. And I have to take my hat off to all of you. I know that you've got a heck of a job to do this thing, but on the other hand, I know that you just got through reading the papers just recently where one of our biggest breweries in St. Louis had to quit making beer on account of fuel oil. Now if they had to quit making beer on account of fuel oil, I wonder what this stuff will do to the beer? That's all I have to say to you and I want to take my hats off to you and thank you, but on the other hand what we got to do, and when I say we, I mean all you officials sitting there and everybody else, we gotta get someplace set up in this state to get our water checked. Even our cities don't check the water for the chemicals and for all of your information, I'm not talking through my hat. Here's the research I had this researched five years ago or more and we still do not check the water, even the cities and so forth, unless you send it to a special lab and if you send it to a special lab it's gonna cost you $1750. Thank you all for letting me talk.

Celeste Kuhn
Thank you. Would you like people to answer your questions?

Gene Rue
Yes, I would answer any questions for anybody that would like to ask.

Celeste Kuhn
Well thank you for your comments. Mr. McCracken, do you have a comment?

Steve McCracken
Yes sir, Mr. Rue, you asked, you made several comments and I'd like to respond to your comments if I could.

Gene Rue
You don't mind me standing up close. I am an old buzzard but I don't hear too good.

Stephen McCracken
One of the very important things about this system that we've designed is that it will allow us to check that water after it is treated and before it's discharged to absolutely guarantee that the quality levels that we're required to meet have been met before we discharge to the Missouri River. That's an important thing. You asked, who would check the water? We fully expect that you will not be able to detect any contaminants from our site in the river water at any of the intakes that are downstream to St. Louis city. In fact, to assure that, we will be testing the water at the intakes to the St. Louis city water supply.

Gene Rue
You will be checking that there?

Steve McCracken
Yes sir.

Gene Rue
One reason that I made these statements, for your information, I know that I don't know how many thousand people live down the river bottoms and I know that everybody that lives in the river bottoms are drinking water out of the river because if they got a point drove in the ground, that's where the water comes from because it comes directly from river. And that's the reason why I made this suggestion and I wouldn't want anybody to think that I would ever make any wild statements. Here's the research that I had done on all of this water checking by the Columbia University, so is there any more questions anybody would like to ask me?

Stephen McCracken
No, sir. And I can assure you that we are not going to contribute to any problems that that report may say that are in the Missouri River.

Gene Rue
Well, this report only said who's going to check the water? That's what this report says. Thanks a lot.

Celeste Kuhn
Thank you. The next person is Sharon Rogers. If she is not in the room, I'll put her card to the back and we'll call on her later. The next person is Mary Halliday.

Mary Halliday
Are you having people spell their name?

Celeste Kuhn
Yes. Can you give us your name and spell it and your organization,

please?

Mary Halliday
My name is Mary Halliday and it's H-a-l-l-i-d-a-y and I represent the St. Charles Countians Against Hazardous Waste. At the meeting last night in St. Louis County, I heard many persons express shall I say disappointment with the Department of Energy and their past performance in sites across the country. We're all aware of mistakes that have been made in the past by the Department of Energy. I would like at this point to express my support of Department of Energy. I've worked with them now for seven years and at this time I'd like to present my - I feel very optimistic about what Department of Energy has done in St. Charles County. And I'd like for everyone to know that simply because that Department of Energy has made some mistakes in the past across the country that doesn't mean that we have to indict them permanently. I feel that we need to - the citizens of St. Charles - need to come out in support of this organization and look at what they're doing in St. Charles County. And my only comment on the report is that we have been given information that the ion exchange system can take down the radioactivity in the water before it is released into the Missouri River. They can bring it down to a point of zero contamination. That means taking out the radioactivity and some of the chemicals. My question is, will you consider this?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
First of all, Mary, I'd like to say that I appreciate your comments about your support for us because that's important to us. What we propose to do is to design a system that will, that is designed to operate at 30 picocuries per liter of uranium discharge. We will guarantee that we won't operate that system at over 100. I can assure you that in getting to this design number that we have, we have applied our policy and something that we take very seriously and that's our as low as reasonably achievable. As we operate that plant, if we can operate at levels below 30 and can reasonably do that, we will do that. And as a commitment, I would say that we will do the very best we can to operate that plant at as low of levels as we can. Practically speaking, even though theoretically an ion exchange system can take numbers perhaps even lower than what we're saying, in reality when you begin to operate those systems they do not always operate the way that you would like them to. And that is the reason we're trying to give ourselves a range that we can operate within and not go outside that range and be criticized for doing that.

Mary Halliday

Okay. Thank you.

Celeste Kuhn
Thank you. Stanley Remington. John T. O'Connor.

John O'Connor
My name is John T. O'Connor. I'm the chairman of the Department of Civil Engineering at the University of Missouri-Columbia. And today I'm representing St. Charles Countians Against Hazardous Waste who have retained me as a consultant on water quality. And they have asked me to review the plans for the treatment of the quarry water and I've had little time to spend with the document but I have looked it over I'll say lightly. And the bottom line is that I think that the proposed treatment scheme should be adequate to meet the demands that are placed on it by the treatment requirements to bring the quarry water to the proposed levels. I might mention as preface to this that I have studied water quality for close to thirty years now - 14 years at the University of Illinois, and 14 years at the University of Missouri-Columbia and then before that in graduate school at Johns Hopkins University and have had some considerable experience in particular in removing radionuclides from drinking water. I have had the good fortune to have the opportunity to study at the Oak Ridge Institute for Nuclear Studies and the precursor to the U.S. EPA, Cincinnati when they taught courses in those days, when our concerns about radionuclides were far greater than they are today, although that may seem strange to some of the people in this room. It was considerably more volatile an issue at that time. In any event, I've use radionuclides a great deal in the study of processes for the removal of stable isotopes from drinking water. I have become familiar with this particular sites and problems, beginning in 1982, when I was asked to look at the pond waters and, at that time, I outlined a treatment scheme for the pond waters because there was an interest at that time in discharging, treating that and discharging that to the Missouri River. The proposed treatment scheme that I suggested is remarkably similar to what has been offered here. It provides, for example, for the addition of lime followed by sedimentation followed by filtration followed by granular activated carbon followed by ion exchange. The difference is notably that the pond waters contain nitrates in highly elevated levels and so there is a treatment scheme provided for denitrification and I was unaware of the arsenic level. If I had been aware of it I would have discarded it anyhow. I don't think that arsenic is significantly higher than drinking water standards. I know that there are many natural waters that contain arsenic at that level that are consumed in this country and I think that that is a minor issue. Manganese is really not an issue at all for the simple reason that it is a secondary standard based primarily on aesthetic considerations.

So the major issue here, as I think those of you who have been involved in this for some time know, is the issue of radionuclides most particularly uranium and those associated elements that are in the decay chain, plus radium. I think that if I had to make any suggestions I think that the report is credible, is well done and if I had to make any suggestions, I would simply suggest that perhaps a laboratory, a simple laboratory study - nothing profound - utilizing ion exchange should be conducted or, for that matter, lime treatment, a physical separation followed by ion exchange should be conducted to see that if, in fact, what levels of uranium, radium and other substances can be obtained. That would be just a good procedure.

Secondly, I noticed and I haven't had time to fully formulate my thoughts in this respect, but I have not yet had the opportunity to review the information from the geohydrology which is a very, very complex subject so maybe I'll put it aside simply because it was so hard to come to grips with, but as I was looking at the data and I spoke with Stan Remington on this, I don't understand why the plume if it is migrating from the quarry has not already been intercepted by the wells in the well field? And I don't understand why unless those substances are not in solution and are being removed by filtration out of the quarry water right now haven't migrated into that area. And I think that one of the things, maybe it's just a matter of scientific interest, but I think that before we entirely describe the idea of insitu treatment of the quarry water for pH adjustment perhaps that maybe that question should be resolved. Why isn't it moving more rapidly or why isn't it moving? I just wanted to, I hope I'm not confounding the issue. I think that we have two acceptable solutions, perhaps. Certainly one is the treatment and discharge, I think is acceptable. There may be others and I think that in consideration perhaps some of the formulators of the proposal were fearful that any recommendation which did not involve treatment would be summarily rejected by the public. I think that one of the roles that I can play in being an advisor to the St. Charles Countians Against Hazardous Waste is to have meetings with them and even the people in this region who have sincere concerns about water quality and legitimate concerns, concerns not only about the effectiveness of the treatment but what the subsequent effects might be on downstream water uses - I think that we need to have some seminars and some discussions and perhaps come to a better understanding of the problems and of our respective solutions. Happily, I will say that in this case there certainly is at least one good solution.

Celeste Kuhn
Mr. O'Connor, do you want your remarks on ground water movement put in as a comment or would you like someone to try and answer

that as a question?

John O'Connor
Well, I guess that is mostly comment and if anybody wants to probe my rationale, I'd be happy to take any questions from them.

Celeste Kuhn
Mr. McCracken, do you have any comment?

Steve McCracken
Let me take a few things in order. First of all, as for as treatability studies, just a lab test to see that the system would work, we plan to do that. That's just practical common sense. We don't want to spend a lot of money and have something that won't work. As far as the subject of how it's getting into the ground water and why it's not getting to the well field, I would suggest that we get together sometime outside this meeting and we'll go through that with you to whatever extent you want to. We think that we have a pretty good idea...(tape ends)

John O'Connor
(new tape begins)...which gives at least my preliminary response to the document and I think that the St. Charles County people haven't heard my comments yet, so this is their opportunity to see what my first wash looks like. Thank you.

Celeste Kuhn
Thank you. Meredith Bollmeier.

Meredith Bollmeier
My name is Meredith Bollmeier. That's M-e-r-e-d-i-t-h B-o-l-l-m-e-i-e-r and I'm with St. Charles Countians Against Hazardous Waste. My comments are few and varied. One is that we recently read about budget cuts in the federal budget and, from what I've understood in talking to people with DOE, there is funds for this water treatment process in the quarry. What I'd like to know and I know a little bit about how the different budgets are being pushed around and what's out now may not be what it is. But I think a lot of importance needs to be stressed on having the budget available for getting the bulk waste out of the quarry, because if they treat all the water and they don't take the bulk waste out and it rains and it rains again and again, we're gonna be right back where we started from. So, I think a lot of emphasis has to be put on and perhaps letters to our congressmen and to push to make sure that the adequate funding is there or else perhaps this initial process shouldn't be started until the funding is assured that they can go to the next step to removing the bulk waste. And that was my main comment that I wanted to say. And it really wasn't a question. It's just a concern. Thank you.

Celeste Kuhn
Thank you.

Meredith Bollmeier
You want to ask me anything, Steve?

Steve McCracken
No. You're correct there are some proposed budget cuts. The quarry is of course our first priority. We do have enough funds to move ahead with the water treatment activity and we propose to do that. Certainly, we need to do some planning and relooking once the budget settles down somewhat. But we will have the quarry and that bulk waste removal is our first priority. And we will also be working with our program people in headquarters to do our best to get a greater share of the program money that's available for this type of work.

Meredith Bollmeier
How long was your presentation that you gave? Because we came in, with all the signing in and everything outside, I think there's a lot of people here that didn't get to see it. If it's only five or ten minutes, maybe you could show it again.

Celeste Kuhn
Okay. Can I ask for a show of hands? Are there individuals who would like to see the Department of Energy's presentation? It is about five to seven minutes. Is there anyone who would like to see that? Okay, it appears that there's sufficient interest. Mr. McCracken, would you mind repeating what you had said earlier? And having them show the slides again?

Steve McCracken
No, I wouldn't mind at all. I hope you're not disappointed by my comments if I say them again, Meredith. I don't think you missed much. I made a point that certainly a very important part of the work that we do involves meetings such as this, where you as the public get an opportunity that you deserve to input to the process that we're doing so we can consider your comments in what we're doing. I spoke about people that are not familiar with the Weldon Spring site that, as a remedial action project, the DOE and our contractors in cooperation with the EPA and of the course the state of Missouri are working to clean up the old uranium feed materials production plant that's in St. Charles County. I mentioned that the task of cleaning up is a very complex task, it is so complex that final decision on waste disposal will take some time. Fortunately, the DOE and the EPA and the state of Missouri have agreed that we should not delay in doing those things that can significantly reduce off-site release of contaminated material.

Of course, we've already done a number of things. We've removed the PCB oils at the site, we're doing asbestos abatement programs, we're doing chemical cleanup, we're doing a number of other things. And certainly, the quarry is one of those areas that poses a significant potential threat to the public and so that's where we're also concentrating our studies and our efforts to clean that area up. And in concentrating our efforts, we have prepared the plan that you all have commented on already some tonight that we believe will allow us to treat the water and remove it as a threat safely. And of course, I just spoke very briefly that our purpose here is to discuss that plan this evening. And with that Ivan has just a few slides that he can put up concerning what the conceptual layout of the plant will look like.

Ivan Joya
First step in planning this plant is to study the contaminants in the water, and there's a long and comprehensive list of contaminants tested and we found that four contaminants exceed some federal or state standards. Arsenic and manganese exceed drinking water standards of .05 milligrams per liter. 2,4-Dinitrotoluene exceeds the ambient water quality standard of .11 micrograms per liter. Uranium exceeds DOE's radiation protection discharge standard of 550 picocuries per liter. We did not find nitrates to exceed the standards. So, therefore, the treatment plant that we are designing is designed to remove contaminants to the standards that apply.

The schematic that's shown here has three major components. You have the equalization basin, you have the treatment plant, and you have the effluent ponds. We will be pumping water from the quarry pond into the equalization basin and combining it with some other flows from the plant. And by doing this, we equalize the flow and provide a constant feed to the treatment plant so as to have a sustained and smooth operation. The treatment plant itself is a combination of chemical and physical processes that are pretty standard and these include chemical additions for precipitation, neutralization, filtration, adsorption on activated alumina, ion exchange and adsorption on activated carbon. And the reason for this is - in the ion exchange step - is to improve the uranium removal capabilities of the plant and we will treat the effluent to a level that will average, on a design basis, 30 picocuries per liter and not exceed one hundred picocuries per liter. The treated water from the treatment plant is stored in effluent ponds. They operate by filling one pond at a time, when the pond is filled we sample the water, testing it for compliance with the limitations of the NPDES permit. If it applies to the standards, it will be discharged by pumping it into the Missouri River. Any waste products that are generated within the plant, as a result of such treatment, such as sludges, spent resins, and carbons, will be

processed, containerized and put in storage at the quarry for later disposal within the Weldon Spring site. Therefore, we will be pumping from the effluent pond into the river, only if the water meets discharge requirements.

This is a layout of the facilities. The quarry's over here, the pond's about 400 feet from the fence line. This is an equalization basin which is about 2 million gallons and is lined with a synthetic membrane. The treatment plant is an area of about 2,000 square feet. The effluent ponds are each about a million gallons each and also will be lined with a synthetic membrane. And the pipeline to the river will follow in this direction about one mile and a half to the outfall. And again, we would only pump one of these ponds, if the water is tested and shown to meet all the discharge limitations.

Celeste Kuhn
Okay. Thank you. Hopefully that will provide anybody who did not hear it the first time with information that you need and then if there's is someone that wants to speak again, once we finish with these cards, we will open up the floor again if somebody wants to ask a question on what has just been presented. The next person is John Nichols.

John Nichols
My name is John Nichols and I'm a professor of mathematics at Lindenwood College. First, I'd like to express my appreciation for the people involved coming up with not only a beginning solution to the problem but one that appears to be acceptable to the residents of St. Charles. A couple of questions that I have, is Mr. McCracken you said you all will design the system to reduce the concentration of uranium to between 30 and 100 picocuries and I'm just curious as to the cost of this design as opposed to the cost of a design that would reduce the concentration to say between zero and 30.

Celeste Kuhn
Mr. McCracken?

Steve McCracken
In the document we've prepared, we looked at two systems that could reduce the uranium below the level that has been determined by DOE to be acceptable for surface water discharge which is 550 picocuries per liter. We looked at the ion exchange system which is the one we've proposed which gets us into the 30 to 100 range and we looked at vapor recompression distillation that will get us below 30 but it won't get you to zero. And a matter of fact, I believe it would operate around 25, maybe some better than that. If we looked at the risk between 550 and 100 and 30, as far as the

citizens and the public downstream, the risk is virtually the same and it's one in ten billion range which is very, very, very low. So risk was not really an issue. But in the spirit of ALARA, which is as low as is reasonably achievable, we asked ourselves what would be a reasonable cost to get the uranium down anyway. And if you look at the ion exchange that's about $200,000. If you look at vapor recompression that's about $800,000 or $900,000. We felt that it was a reasonable thing to spend the additional $200,000. We felt like a million or $900,000 for no appreciable improvement in safety was not.

John Nichols
So, the differential in cost was approximately $800,000?

Steve McCracken
I think yes.

John Nichols
Now I don't want to suggest to you that I disagree with your risk analysis because I do not. The suggestion that I was making is the question of whether I agree or disagree is not a fundamental one at this point. It's the question of impact on the citizens of St. Charles. So I would suggest in that vein that you take some reasonable effort to inform the citizens of St. Charles that the risk factor is somewhat minimal between five picocuries and 30 to 70. But I agree with you, in fact.

Steve McCracken
Thank you. I would like to make one comment too and that is that we will never consider cost until we consider safety first.

John Nichols
The other question that I have, I actually have three questions and if you think I'm taking too much time just please ...

Celeste Kuhn
No, that's fine.

John Nichols
The ultimate objective is to remove the contaminants and store them in containers which I think the gentleman said will be stored at the Weldon Springs site. Do you anticipate a permanent storage at the Weldon Springs site or will these be put in containers that will be suitable for movement?

Celeste Kuhn
Mr. McCracken?

Steve McCracken

What we plan to do is to temporarily store the sludges and the resins that will be generated as a result of removing the waste from the water. That will be temporarily in the quarry until we get to the decision on what to do with all the other waste that's already in the quarry. There's about 100,000 cubic yards of waste in that quarry. The additional thirty cubic meters or however many yards that it is very insignificant on the overall problem down there, so we will include the final disposal for those resins and sludges along with that in the quarry.

John Nichols
And at this point the question of ultimate storage has...

Steve McCracken
That has not been decided. The final disposal decision will not be until April of 1991 and, in fact, that's the reason we're going ahead with these more important activities.

John Nichols
That goes into the next question which you've already answered. The question was, is it a general policy that the waste removed from both the quarry and the raffinate pits that the destination will remain in St. Charles County? And I guess you've answered that. I'm not thinking globally. Is that a policy that whatever contaminants are removed generally will stay at the site?

Steve McCracken
There is no policy on that. The process that we're going through and the decisions from that process will determine where the final waste storage or waste disposal will be.

John Nichols
Again, the next question anticipates the future decision, but are you leaning in the direction of doing essentially the same thing to the pits, to the raffinate pits?

Steve McCracken
We would like to move ahead and treat the water that's in the pits, subject to availability of funding, because that water is also leaking to the ground water. It doesn't pose the same threat that the quarry poses to the well field. However, if we could get to that activity, then we could eliminate it from continuing to contaminate the ground water which only makes a bigger problem for us to have to deal with in the future, perhaps.

Celeste Kuhn
I would like to recommend that if you do have further questions on the raffinate pits that you could talk with him after this meeting.

Steve McCracken
I tend to get off the subject too, we have to have the moderator to bring me back.

Celeste Kuhn
Cheryl Nichols. Okay, I'll put her card at the back. Dr. Rai Ayyagaari. I'm sorry if I said your name wrong.

Rai Ayyagaari
I think you said it okay. My name is Rai Ayyagaari. The last name is spelled as A-y-y-a-g-a-a-r-i. I'm in the department of biology at Lindenwood College. Today I'm speaking for myself, not for the college. I have a few technical questions. I don't know if I should go ahead and ask all of them at the same time or should go one by one.

Celeste Kuhn
Why don't you go ahead one at a time, unless they're related.

Rai Ayyagaari
I think for the information of the public it would be nice to know what the nature of the ion exchange is. Is it a resin, is it like a water softening process?

Celeste Kuhn
Mr. McCracken?

Ivan Joya
It's very similar to a water softening process. Except it's specific for - this is a negative, an ion exchange resin specific for negative ions.

Rai Ayyagaari
So something similar to what you buy in Sears softening plant?

Ivan Joya
Yes, something similar, yes.

Rai Ayyagaari
How often is this going to be changed, the capacity? How would you know if the capacity is exceeded?

Ivan Joya
Well, this will be monitored during the process and we would plot what's known as a breakthrough curve and, at some point in time, we will notice some breakthrough and we will change to another column, regenerate to whatever the process design finally comes out to be.

Rai Ayyagaari
The next question is regarding this procedure, if it has been used elsewhere for treating a large body of water like this. Has it been used elsewhere in the country?

Ivan Joya
Yes there - some plants, especially in the western states, that have used ion exchange systems to treat ground water supplies for drinking water purposes.

Rai Ayyagaari
But not for radionuclides?

Ivan Joya
Yes. It has for uranium, yes.

Rai Ayyagaari
Then the next question is the addition of lime - will that change the pH of the water?

Ivan Joya
It will upon addition, but we will neutralize that and we have a standard for discharging within a certain pH range.

Rai Ayyagaari
So there is a protocol for testing the pH?

Ivan Joya
Oh, yes. Definitely, yes.

Rai Ayyagaari
And the last question I have is what's the effect of the 2,4-dinitrotoluene on the plastic sheets you are going to use? Is that going to have an effect on, the organic material is going to interact with the plastics or is that something...

Ivan Joya
We don't anticipate a problem with that, no. Not at those concentrations.

Steve McCracken
That's a good question. I think it's something we will certainly take a look at just to be sure.

Rai Ayyagaari
I also want to thank the department as well as the Department of Energy as well as the rest of the officials for doing a responsible job, I think, so far. Thank you for that.

Celeste Kuhn
Thank you. Michael Garvey.

Michael Garvey
Thank you. My name is Michael Garvey, G-a-r-v-e-y. I'm speaking on behalf on the St. Charles Countians Against Hazardous Waste. I agree that the plan is compatible with maintaining adequate water quality for the time being to the 63,000 to 65,000 citizens who drink water from the Weldon Springs well field. I also agree that the plan will have very minimal effect on water quality that will be seen in the river water intakes supplying the total greater St. Louis area. Many people at the meeting last night, and I'm sure tonight, express a feeling of having no control over the situation. I had the same feeling a while back and still do to a degree, but as a concerned citizen, I've learned that actually people can make things happen. Our group, I think, has improved communications and we're always willing for people to join, by way of advertising. I agree with Mary Halliday that the group of people here at Weldon Springs are honestly trying to do the best they can. I'm also concerned about the budget cuts and the urgency to move ahead with the bulk waste removal and vicinity property remediation. Last night, another speaker brought up the economic feasibility of piping the water from other water treatment plants for the use of the new well field entirely. I believe a cost feasibility study is reasonable in a long range planning in that regard. My only criticism of the plan is some of the wordings in the plan, as in agreement with a speaker last night, is the use of the term "anomaly" to describe the monitoring results of RMW2. My question is does both the DNR and the DOE consider RMW2 as background or anomalous?

Celeste Kuhn
Would you like that question answered?

Michael Garvey
Yes, please.

Celeste Kuhn
Okay. Mr. McCracken?

Steve McCracken
We consider the levels that are in RMW2 to be an anomaly. They are somewhat higher than the other three wells that are in the same, along the south side of the Femme-Osage slough. We have as you know, we've talked a number of times and we've done of number of things to try to determine exactly why these numbers are slightly increased in RMW2 and we haven't been able to do that. Whether we will ever know for sure why that well is slightly higher, I'm not sure why that monitoring well is slightly higher I'm not sure. The

one point that I would like to make is that the levels in that well have always been higher than the other three monitoring wells. These are monitoring wells by the way, for the people that don't know that. They are not the drinking water wells. Whereas it's always been higher, it's been well below anything that's being contemplated as a drinking water standard.

Celeste Kuhn
Okay. Mr. Hentges, or Ron Burgess?

Ron Burgess
Mike, I'd say that DNR is concerned about that RMW2 well which is the reason that we went ahead and proceeded with additional testing on it. What made us possibly a little more relaxed was that the increasing concentration that we saw, over I believe two or maybe the first three tests we had, seemed to level off with subsequent testing. We now have, I believe, two more tests that show that the level is holding somewhere around I believe eight, nine picocuries per liter. However, again, we're just cautious with it, we are concerned about it but we hope to continue testing, will show us which way it's heading. And again, I'd like to reinforce what Steve said. It is a monitoring well and it's a goodly distance from the production wells which serve the water treatment plant. And so I think as long as we continue monitoring it and the levels don't go any higher than they do, I think we're reasonably satisfied with those results.

Michael Garvey
I have one other concern that lies in the overuse of the statement the Femme-Osage slough intercepts the contamination. I was wanting to ask, what happens to the contamination after it reaches the slough? What about the possibility of bedrock migration under the slough?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
I'd like to have Roger Nelson address that comment, Mike.

Roger Nelson
Well, we don't know the exact nature of why the slough intercepts the contamination that migrates from the quarry. We do feel very certain that the material is not getting past the slough. There are ten monitoring wells just on the south side, just on the other side of the slough and those numbers always come back consistently indistinguishable above background. A mass balance was performed, based upon draw down tests of the U.S.G.S. performed in 1960, where they considered the quarry sump in effect a large diameter

well. Based upon the inflows that they measured then and extrapolating to the outflows, due to the fact that the waste and water was in the quarry, you get a mass balance of the concentrations of uranium in the north side of the slough with respect to the amount of uranium that should have leaked. So we do not believe that there is any material that has migrated to the south side of the slough. But we do not know the actual reasons.

Celeste Kuhn
Yes. Proceed.

Steve McCracken
I would also like to say that just because we removed the water from the quarry we're not going to relax our monitoring program. If anything, it will be a very, a period when we will be very interested in what's going on even more than we are now, if that's possible and frankly we have a very, very solid monitoring program.

Celeste Kuhn
Carl Reininger.

Carl Reininger
My name is Carl Reininger. The last name is R-e-i-n-i-n-g-e-r. I'm representing the Wentzville School District and myself as well. I have many questions. I've lived in this county for 40 some years, I knew the plant was there and I knew the quarry was there. My questions are: The quarry is that right at the bottom of the hill where you make the turn just before you get across the railroad track?

Celeste Kuhn
Mr. McCracken.

Steve McCracken
Yes, sir.

Carl Reininger
That's a very small hole, probably about the size of this building, if I can remember correctly from what you can see from the road. Is that right?

Steve McCracken
That's right. It's about nine acres and a one-acre sump that's in it.

Carl Reininger
The quarry is nine acres big?

Steve McCracken

Yes, sir.

Carl Reininger
Well it must be more than what you can see from the road, then. Is that right?

Steve McCracken
Yes.

Carl Reininger
Alright. You say there's three million gallons of water in there?

Steve McCracken
Yes, sir.

Carl Reininger
Alright. A few quick figures gives me, at 31 gallons a minute that the process purifies, that's about roughly 40,000 gallons a day, in one day. In 25 days would be a million gallons. So 75 days would be three million gallons. Now at the rate of 31 gallons a minute, why does it take six or seven or eight years to empty that quarry? Is there that much ground water that seeps in there at a time that you can never get ahead of the amount of inflow that's coming into the quarry through seepage through the rock?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
Yes, sir. The system has to be designed to get ahead of the inflow or we would never empty the sump. What we expect is that it'll take about a year to empty the three million gallons that are in the quarry. And then the additional operating period is for whatever inflow there is to the quarry and we're not exactly sure what that inflow rate would be. However, that's the reason we'll design a conservative plant that allows for whatever inflow there might be into the quarry sump.

Carl Reininger
I realize that that's a hidden, that's a $64,000 question, because all grounds are rocks. I'm a heavy equipment operator. I know some about soils and things like that. When you get into these quarries, you have to have pumps running almost all the time to keep the quarry dry.

Steve McCracken
Right.

Carl Reininger

My next question is, how far will you draw that water down, till the quarry is completely empty and then the sediment that is in the bottom of it, what will be done with that in order to keep the seepage from coming in again, refilling the quarry and you come with the same thing and after you've spent all this money to drain the quarry down, how is that going to be taken care of?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
We will always - the sludges that are in the bottom of the sump will always remain wet so that they don't become airborne. I may have missed something, but we will continue to pump and treat the water until we have removed the bulk waste from the quarry and can confirm that in fact we have finished the job in the quarry.

Carl Reininger
What I'm getting at is, even in the seepage water, once you get the hydraulic pressure of the water down, the contaminants that's in there which will be in a much more thick quality - wouldn't that seep back into the rock as the water goes down because you don't have as much pressure to hold it into the quarry and then you would actually have, as new seep water comes in, would wash the pollution back into the quarry again?

Steve McCracken
Do you want to take that?

Roger Nelson
As I just stated, that large diameter well test that the U.S.G.S. performed in 1960 before wastes were put in the quarry indicated that there was a significant ground water recharge. The bottom of the quarry is actually several feet lower than the water table in the alluvium out near the well field and so by drawing the quarry sump all the way down or within a few feet of the bottom of the quarry sump we will actually create a negative gradient. We will be drawing contaminated water, we hope to draw contaminated water back into the quarry, and effect the initial stages of a ground water restoration program.

Carl Reininger
In other words that would clear the water that's being drawn in the wells because it is pulled back into the quarry because of the lack of the pressure against it. It would naturally flow in a reverse?

Steve McCracken
We expect that that will happen. Whether that would be sufficient,

though, to finally to clean up the ground water is something we would have to decide once we get the bulk waste removed and we can see what the situation is there and what needs to be done about the ground water.

Carl Reininger
Alright. My next question is how far away are the wells that they draw the water out of the bottom for the water supply that St. Charles City uses and Missouri Cities use? And they just strung water lines all over St. Charles County out here in our area. Where was that water drawn? How far is that from the quarry now?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
Okay, it's about a half mile from the quarry to about the center of the well field. To the nearest well, it's about a half a mile.

Carl Reininger
And today our water is pure according to the standards? That they are drawing out of there?

Celeste Kuhn
I would like to refer that question probably to Mr. Burgess with the drinking water program.

Ron Burgess
Yes, sir. The water that is being sent out into the pipes from the treatment plant - there's no problem with that at all. In fact there's no problem with the well water that is being taken up from the alluvium by the wells, that is raw water that is being sent to the treatment plant. We do monitor the raw water in the wells. We monitor these monitoring wells that are in advance of the production wells. We also monitor the treated water that leaves the plant and goes out to the public.

Carl Reininger
I had another question. Forgive my mind right now. Is there any plans in the future and I guess this is probably not in your realm, of hooking all of these water plants in the city from Wentzville, Lake St. Louis, St. Charles - all to the wells down there? Sometime in the future?

Celeste Kuhn
Mr. McCracken? Or, Mr. Burgess?

Ron Burgess
I know of no plan to do that. No, sir. Those are independent

systems. I know of no plan to do that.

Carl Reininger
Okay. Thank you very much. I appreciate a chance to speak and I think you people have got one heck of a job to try to do.

Celeste Kuhn
Thank you. Sharon Rogers. I'm sorry you were out when we called your name earlier, so you got moved to the back.

Sharon Rogers
My name is Sharon Rogers and I'm here as a representative of the Missourians Against Hazardous Waste. One of the comments that I'd like to make is that I'm pleased to see that you've decided to try, the decision's been to treat the water to reduce it to the required standards before discharging it to the river. Because I think we all are realizing that at this point in time that the rivers are no longer such that it should be relied upon for the dilution of pollutants. Also, the discussion that was brought up earlier about the plume flow toward the well field from the quarry. Even though that isn't considered to be a part of the discussion tonight, when that is brought up for discussion, I wish that there were some way that you could let us know when and where that will take place because I'd certainly like to be a party to that. It's, I think, it's something of primary interest to the people in this area about the plume movement and how it's being intercepted, if at all, before it gets to the well field. Also, Mr. Burgess, I was under the impression that there are radionuclides in the drinking water in the St. Charles area and that it's felt that it is coming from the well field. Are those radionuclides considered to be within the levels that you prescribe?

Ron Burgess
Which supplies did you have in mind? You say in the area, in the entire St. Charles County area? There are some...

Sharon Rogers
Coming from the well field. I think the one that I was made aware of in the past was the new water line that ran from the well fields in St. Charles out to Wentzville. That there was some question about the level of the radionuclides there.

Ron Burgess
No, that's...

Sharon Rogers
You don't find them at all? Or they are at acceptable levels, and what is the measurement then?

Ron Burgess
We've been monitoring the output of the treatment plant, that is the treated water that is sent out into the pipes, into the distribution system. And that has averaged approximately 2 or 3 picocuries over the last 14 years.

Sharon Rogers
That's as it leaves the well field?

Ron Burgess
No, ma'am. That's as it leaves the treatment plant and goes into the pipes.

Sharon Rogers
But this pipe that's come out to Wentzville has just recently been installed. Does that go into a treatment system on that end and then goes out?

Ron Burgess
I don't think I'm understanding you. The fact that a new pipe is put in doesn't affect the treated water coming out of the treatment plant.

Sharon Rogers
In other words, the water is piped from the well field to a treatment plant and then distributed to the residents.

Ron Burgess
Yes, ma'am.

Sharon Rogers
You don't check the radionuclides in the water then as it comes into the plant, prior ...

Ron Burgess
Yes.

Sharon Rogers
You do.

Ron Burgess
Yes. That would be the raw water from the production wells. There is some radioactivity in it, but it's at a lower level than what we have seen, say at RMW2, or that is seen in the quarry and in the monitoring wells around the quarry.

Sharon Rogers
And that's two to three picocuries per liter.

Ron Burgess
No, ma'am. That's somewhat higher than that. The two to three is what is treated water leaving the plant. The water in the production wells and in the well field I believe run about four to six picocuries per liter. That's the eight production wells out in the well field.

Sharon Rogers
Okay. As far as I am concerned I think and I have talked to a few people, we're satisfied that the proposed treatment scheme is adequate and we appreciate the efforts that you've put forth, and certainly appreciate the improved relations between allowing citizen involvement earlier on with regard to this issue and commend you for your efforts and hope that, in the future, you will try to implement citizen involvement early on in every stage of this planning. I think you will see that people are reasonable, they're intelligent and that they can come up with reasonable solutions to their problems, if you'll just give them a chance. Thank you very much.

Steve McCracken
Ms. Rogers, I can assure you that the public will be involved in everything that we do as we go along and you'll be involved early. There'll be lots of opportunities for you to participate in everything that we're going to do out there. I want to promise you that because, and by the way, we published a work plan in September that lays out the overall, the entire activities that we plan to carry out at our plant and the schedule for that and it talks about how the public involvement, how that interaction will take place. If you would like to give your name to myself or any of the people here, we will get you a copy of that.

Sharon Rogers
Mr. McCracken, I appreciate that. I, for one, participated in a presentation that was given about a year ago last, this past January at the Howard Johnson Inn in St. Charles and I can assure you that, at that point in time, the feelings weren't as you have expressed. While Meredith Bollmeier was giving her presentation at the meeting, several of the people from the DOE and the Weldon Springs project got up and left the room and I can assure you that things weren't always as you have expressed today. Again, I would like to say that I appreciate what you have done in the interim to improve public participation and public relations with regard to this situation. Thank you. And yes, I would like your outlined plan.

Steve McCracken
Thank you. Can we make one other comment - just a real quick one?

Celeste Kuhn
Yes, a quick one.

Steve McCracken
Roger, would you talk about the - it's just a point that we want to make.

Roger Nelson
As Mr. Burgess explained, there is uranium and radioactivity naturally occurring coming from the well field, but we believe that it is at background levels. We would like to point out that we've done a number of tests on a number of wells, trying to determine what background truly is, and it does vary depending upon the geographical location. For example, an upstream well several miles upstream along the Missouri River called the gun club well was recently tested and showed 5.5 picocuries per liter, without any influence to the quarry itself. So the concentrations of the radionuclides in the alluvium can vary significantly from location to location. And two to three picocuries per liter being released from the treatment plant is quite normal.

Sharon Rogers
Okay. But I don't know how you can safely say that you know that there's no influence from the radionuclides existing at the site because, hydrologically speaking, it's very difficult to say in black and white what is and what is not affecting the situation. I think, I'd like to refer you to a geologist by the name of, a hydrogeologist by the name of Tom Illey who could probably give you some insight to that.

Steve McCracken
That's right. We don't...

Sharon Rogers
It's just really very hard to come out and say just in black and white that it's not being impacted so and that's another reason why I understand that it's difficult to determine what background levels really were before this thing existed.

Steve McCracken
We don't believe that there is contamination getting from the quarry into the well field. However, that is arguable. We've discussed it many times, the only point we're trying to make is that the water that's coming from the well field has the same levels of radioactivity in a background well that is upstream that is not affected by the quarry. And that's all we're trying to point out.

Sharon Rogers

Okay. Thank you.

Celeste Kuhn
Thank you. Cheryl Nichols. I guess she's gone. Is there anyone else who would like to speak at this time? Yes.

Unknown
I'd just like to ask one further question of Mr. Roger Nelson. I didn't quite get what you said about the elevation of the water level in the quarry as compared with the water level in the Missouri River. Which is higher?

Celeste Kuhn
Mr. Nelson?

Roger Nelson
During the major portion of the year, the water level in the quarry sump is 10 to 15 feet higher than the level in the river.

Unknown
That's what I thought. So then when you pump this quarry water out, then you actually lower the elevation of the water level in the quarry, it would be below that of the Missouri River? Which would give you that reverse flow?

Roger Nelson
Well, it would depend upon the river stage. During the high river stage, the quarry itself would be lowered to a level actually below the water level of the river. But certainly at a low river stage, it would not be.

Unknown
Okay. I just wanted to make sure. The whole issue of... (end of tape)

Celeste Kuhn
Who else would like to ask a question? Yes, please come up.

Donald Welch
My name is Donald Welch, W-e-l-c-h. I had a question concerning, and I'm sure you've probably taken care of this, but this is a simple question for simple people, like myself. The containing basins after the water is pumped out of the quarry, I assume that those are of such elevation that would prohibit any rainwater influx or overflow. And the pump back capabilities for recirculation through the decontamination system, is that all well taken care of? Is that considered in the work plan that you talked about?

Celeste Kuhn
Mr. McCracken?

Steve McCracken
That would be part of the final design, but it is going to be a part of that design. And I think that some of the graphics that, I think that some of the things that Ivan said, he mentioned that we would recirculate the water. There is pump back capability from the effluent pumps to the equalization basin, if that's necessary. And yes, the ponds will be designed for the probable rainfall. We'll design those ponds so that there won't be any uncontrolled release.

Donald Welch
Thank you.

Celeste Kuhn
Thank you. The gentleman in the blue jacket.

Kenneth Gronewald
My name is Kenneth Gronewald. Spell that G-r-o-n-e-w-a-l-d. I'm with the St. Charles Countians Against Hazardous Waste. I've got one question on the quarry. I haven't been in that quarry since I hauled stuff down in that quarry many years ago. And what I'd like to know, has that quarry ever got up to an overflow stage that contaminants have run out in the past years or is everything in that quarry, the water that's filled into that quarry over the years went out by seepage like we're talking about out toward the slough and out towards the well fields?

Celeste Kuhn
Mr. McCracken?

Roger Nelson
Continuous observation yearly since 1960, when the quarry was being filled, indicated that there's never been any surface outflow from the quarry. When the quarry sump level rises, due to significant precipitation, the head gets higher and it leaches through the ground water system faster.

Kenneth Gronewald
That answers my question. I appreciate it. Thank you.

Steve McCracken
Yes, sir.

Celeste Kuhn
Thank you. Is there someone else who would like to ask a question or make a comment? Yes, Mr. Garvey.

Michael Garvey
There was a comment tonight about wanting to have maybe a meeting to discuss the well field alluvium and hydrologic influences. One of our plans for our group is to host an annual public information meeting and, of course, the Department of Energy and Department of Natural Resources are all involved. But I see it as maybe a possibility to inform the public of these types of things. I asked a question earlier that I don't know was adequately answered. The slough is intercepting contamination. Where does the contaminated water go that's in the slough?

Celeste Kuhn
Mr. McCracken.

Roger Nelson
Dr. Garvey, we cannot be sure that we know exactly the overall environmental fate of the leachate, that leaks out of the quarry and into the alluvium on the north side of the slough. There are several conjectures, however, and I want to premise my discussion with the fact that these simply are conjectures. As you know, the north area of the slough is very heavily vegetated and so there is a significant amount of evapotranspiration. And, in fact, several of the figures in the EE/CA document that is the subject of the discussion tonight show concentrations in the ground of uranium that have been deposited there over the 20 or so years that the material has been leaching. Those concentration isopleths or lines of constant concentration indicate that the highest levels are along the surface which imply that there is an overall upward migration which lends some credibility to the evapotranspiration route. In addition, as you know, despite the University of Missouri dike, the alluvium floods every now and then, probably once every four to five years. When that occurs, the entire area is flushed. All of that water eventually drains back out to the Missouri River and in effect, we start from scratch or start from a lower concentration and then it starts building up again. So those two conjectures are what we believe are the result of, or the reasons for the levels that we see and the fate that the uranium has.

Steve McCracken
I think that this certainly argues that our point of view too, as well as the one that's been expressed tonight, that we need to get on with this activity I think.

Celeste Kuhn
Are there further questions or comments? Yes, ma'am, Mrs. Belt?

Louise Belt

My name is Louise Belt, and I'm concerned about the access restriction. You've had signs on there saying you know, no entrance, whatever. And they get taken down. And my feeling is that the signage has got to be a lot better than that and, not only that, you have to have some sort of sign that's bolted on and maybe some sort of monitoring system so that a bell will go off somewhere and tell you when somebody's coming along with tough bolt cutters to take the sign down again. That's one thing. The other, the thorium at the seven feet down in the quarry is 4 1/2 times the amount of thorium in the deeper levels. Now the inventory of uranium-238 at 40 feet is 7.2 times the average inventory at the 25, 14, 7 and 1/2 levels. Now is that because it was dumped first or because it migrated down there? And if it was migration, then we would imagine that the ground water would be more damaged by uranium at this bottom level. What does that tell you, those figures that were in your EE/CA?

Celeste Kuhn
Mr. McCracken.

Roger Nelson
I believe that the differential concentrations that you just quoted are primarily due to the depositional characteristics, the methods and the sequence within which material was placed. We do not see thorium or radium at significant concentrations in the quarry sump or the water. In addition, we don't see thorium or radium in concentrations on the north side of the slough, where we do see elevated levels of uranium in the water. The implication is that the thorium and radium are very insoluble and are stationary within the waste itself. So again, our conjecture, at this time, is that the material is in its setting simply due to the placement originally.

Louise Belt
Thank you.

Steve McCracken
Mrs. Belt, we are also looking at signage now to try to design something that people won't steal any more. And perhaps we will be able to inset them inside the fence. We're looking at that. We're going to do something in the quarry area.

Louise Belt
Good. Thank you.

Celeste Kuhn
Thank you. Any additional questions or comments? Mr. Hentges, do want to make any concluding remarks?

Bob Hentges
As I said earlier, we have this on public notice, we will be accepting comments until March 6 of this year. If you have any comments, our address is on the various documents that were handed out tonight. We are willing to take any comments that you have between now and then. Thank you.

Celeste Kuhn
Okay. If you know of someone who could not be here tonight, but would like to ask a question, you can also contact the Department of Natural Resources, toll free at 1-800-334-6946. And the address for written comments to be submitted to the Department is on the ivory fact sheet. The Department of Energy, I understand, is also taking comments on their EE/CA engineering document and I think the address you send those is also on the ivory fact sheet. Is that correct?

Steve McCracken
That's correct.

Celeste Kuhn
Okay. We do have one last question. Please step to the mike.

Unknown
The only other question I had is, for the people who have registered here tonight, will they be on a mailing list or will there be a mailing list of some of the updates that comes in regards to this quarry cleanup down there? Will they be on a mailing list on a permanent basis to get all the latest information as progress proceeds on the project?

Celeste Kuhn
Mr. Hentges?

Bob Hentges
We will notify everybody that was here tonight on the status of our permit application. As far as permanent mailing lists for DOE actions, I don't know that. I will turn that back over to Mr. McCracken.

Steve McCracken
I think that what I would like to ask you to do if you would like to be on our mailing list, that at the desk there's a few people that could take your name and we'll do it that way, anybody that's interested in being on the mailing list.

Unknown
Alright, fine. Thank you.

Celeste Kuhn
Thank you. This concludes the department's meeting. Thank you all for coming.